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PATENT
Attorney Docket No. A-69248/RFT/RMS/RMK
Attorney File No.: 463037-00225

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

YOWANTO *et al.*

Serial No. 10/803,166

Filed: March 16, 2004

For: *Chemical Ligation of Nucleic
Acids*

Art Unit: To Be Assigned

Examiner: To Be Assigned

CERTIFICATE OF MAILING

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Date: September 20, 2004

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By Brent Yonahara

**INFORMATION DISCLOSURE STATEMENT
AND
STATEMENT OF RELATEDNESS**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In satisfaction of the duty of disclosure under 37 C.F.R. § 1.56, and in accordance with the provisions of 37 C.F.R. §§ 1.97 and 1.98, Applicants wish to draw the attention of the U.S. Patent and Trademark Office to the references cited on the accompanying form PTO/SB/8A. In accordance with 1273 Off. Gaz. Pat. Off. 1, 8/5/2003, no copies of U.S. patents and U.S. published applications are enclosed. Copies of all other references are enclosed.

Further, in accordance with the provisions of 37 C.F.R. § 1.98(a)(3) and MPEP § 609(III)(A)(3), Applicant submits that reference no. B4 is not in the English language and

directs the Examiner's attention to the English language abstract of same enclosed herewith for a concise statement as to its relevance.

Further, in satisfaction of the duty of disclosure under 37 C.F.R. § 1.56, and as required by M.P.E.P. § 2001.06(b), Applicant notes that the present application is related to the following pending patent applications:

1. U.S.S.N. 09/626,096, filed July 26, 2000; and
2. U.S.S.N. 10/137,710, filed April 30, 2002; U.S.S.N. 10/336,225, filed January 2, 2003.

Nothing herein shall constitute an admission concerning the contents of any of the cited references, nor shall the inclusion of a reference herein be considered an admission that the reference constitutes prior art against the invention claimed in the above-identified application. Submission of the present document shall not be construed as an admission that a search has been made or that better art does not exist.

As far is known to the undersigned, this Information Disclosure Statement is being filed within three months of the filing date of a national application, within three months of the date of entry of the national state in an international application, or before the mailing date of a first Office Action on the merits as set forth in 37 C.F.R. § 1.97(b), and therefore no fee is required. While no fee is believed to be due, if this belief is in error, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-2319 (Our Order No. 463037-00225 (A-69248/RFT/RMS/RMK)).

Serial No.: 10/803,166
Filed: March 16, 2004

Please direct further questions in connection with this Application to the
undersigned at (415) 781-1989.

Respectfully submitted,

DORSEY & WHITNEY LLP

Dated: 9/20/04

By: 

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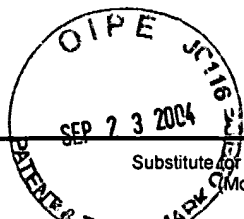
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Renee M. Kossak, Reg. No. 47,717 for

Robin M. Silva, Reg. No. 38,304

Filed Under 37 C.F.R. § 1.34(a)

Attachments: Form SB/08/A-B, substitute for Form PTO-1449
36 cited references
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Substitute for form 1449A/PTO (Modified) INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Complete if Known		
			Application Number	10/803,166	
			Filing Date	March 16, 2004	
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			Art Unit	Not Yet Assigned	
			Examiner Name	Not Yet Assigned	
Sheet	1	of	4	Attorney Docket Number	A-69248/RMS/RMK (463037-00225)

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	4,656,127	04-07-1987	Mundy	
	A2	4,849,513	07-18-1989	Smith et al.	
	A3	4,988,617	01-29-1991	Landegren et al.	
	A4	5,591,578	01-07-1997	Meade et al.	
	A5	5,620,850	04-15-1997	Bamdad et al.	
	A6	5,705,348	01-06-1998	Meade et al.	
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	A8	5,780,234	07-14-1998	Meade et al.	
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	A13	6,090,933	07-18-2000	Kayyem et al.	
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	A22	6,268,150 B1	07-31-2001	Meade et al.	
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	A26	6,479,240 B1	11-12-2002	Kayyem et al.	
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	A32	2003/0150723 A1	08-14-2003	Kayyem et al.	

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			Art Unit	Not Yet Assigned	
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Sheet	2	of	4	Attorney Docket Number	A-69248/RMS/RMK (463037-00225)

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	A33	2003/0170677 A1	09-11-2003	Meade et al.	
	A34	2004/0101890 A1	05-27-2004	Meade et al.	

FOREIGN PATENT DOCUMENTS						
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	B1	EP 0 733 058 B1	04-10-2002	California Institute of Technology		
	B2	EP 0 871 642 B1	04-23-2003	California Institute of Technology		
	B3	EP 1 172 446 A2/A3	04-10-2002	California Institute of Technology		
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	B5	WO 95/15971 A2/A3	06-15-1995	California Institute of Technology		
	B6	WO 96/40712 A1	12-19-1996	California Institute of Technology		
	B7	WO 97/31256 A2/A3	08-28-1997	Cornell Res. Foundation, Inc.		
	B8	WO 97/46568 A1	12-11-1997	California Institute of Technology		
	B9	WO 98/20162 A2/A3	05-14-1998	Clinical Micro Sensors, Inc.		
	B10	WO 99/37819 A2/A3	07-29-1999	Clinical Micro Sensors, Inc.		
	B11	WO 01/06016 A2/A3	01-25-2001	Clinical Micro Sensors, Inc.		
	B12	WO 01/07665 A2/A3	02-01-2001	Clinical Micro Sensors, Inc.		

NON PATENT LITERATURE DOCUMENTS					T ⁶
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
	C1	ALSFASSER, R., et al., "Novel Building Blocks For Biomimetic Assemblies. Synthesis, Characterization, And Spectroscopic And Electrochemical Properties Of New Bidentate Ligands Derived From Lysine And Cystine And Their Complexes With Bis(2,2'-Bipyridine)Ruthenium(II)," <i>Inorg. Chem.</i> 35(3):628-636 (Jan. 1996).			
	C2	ANNE, A., et al., "Synthesis of first ferrocene labeled dideoxynucleotide and its use for 3'-redox end labeling of 5'-modified single stranded oligonucleotides," <i>Bioconjug. Chem.</i> 12:396-405 (2001).			
	C3	ARKIN, M., et al., "Rates of DNA-mediated electron transfer between metallointercalators," <i>Science</i> 273(5274):475-480 (Jul. 1996).			
	C4	BAMDAD, C., "A DNA self-assembled monolayer for the specific attachment of unmodified double - or single stranded DNA," <i>Biophys. J.</i> 75(4):1997-2003 (Oct. 1998).			
	C5	BARANY, F., "Genetic disease detection and DNA amplification using cloned thermostable ligase," <i>Proc. Natl. Acad. Sci. USA</i> 88(1):189-193 (Jan. 1991).			

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	C6	BRAZILL, S., et al., "Capillary gel electrophoresis with sinusoidal voltammetric detection: a strategy to allow four-color DNA sequencing," <i>Anal. Chem.</i> 73(20):4882-4890 (Oct. 2001).	
	C7	CARR, J., et al., "Novel electrochemical sensors for neutral molecules," <i>Chem. Commun.</i> 17:1649-1650 (1997).	
	C8	HSUNG, R., et al., "Synthesis and characterization of unsymmetric ferrocene-terminated phenylethynyl oligomers Cp ₂ Fe-[C≡C-C ₆ H ₄] _n -X (X = SH, SMe, SOMe, and SO ₂ Me)," <i>Organometallics</i> 14(10):4808-4815 (Oct. 1995).	
	C9	IHARA, T., et al., "Ferrocene-oligonucleotide conjugates for electrochemical probing of DNA," <i>Nucleic Acids Res.</i> 24(21):4273-4280 (Nov. 1996).	
	C10	IHARA, T., et al., "Gene sensor using ferrocenyl oligonucleotide," <i>Chem. Commun.</i> 17:1609-1610 (1997).	
	C11	KRIDER, E.S., et al., "Electron transfer in DNA: covalent attachment of spectroscopically unique donor and acceptor complexes," <i>J. Biol. Inorg. Chem.</i> 3(2):222-225 (Apr. 1998).	
	C12	LUEBKE, K., et al., "Nonenzymatic ligation of oligodeoxyribonucleotides on a duplex DNA template by triple-helix formation," <i>J. Am. Chem. Soc.</i> 111(23):8733-8735 (Nov. 1989).	
	C13	MEADE, T.J., et al., "Electron transfer through DNA: site-specific modification of duplex DNA with ruthenium donors and acceptors," <i>Angew. Chem. Int. Ed. Engl.</i> 34(3):352-354 (Feb. 1995).	
	C14	MUCIC, R., et al., "Synthesis and characterization of DNA with ferrocenyl groups attached to their 5'-termini: electrochemical characterization of a redox-active nucleotide monolayer," <i>Chem. Commun.</i> 4:555-557 (1996).	
	C15	RACK, J.J., et al., "Spectroscopy and electrochemistry of Ruthenium-modified nucleic acids: design of a novel-metal binding nucleoside," <i>J. Am. Chem. Soc.</i> 122(26):6287-6288 (Jul. 2000).	
	C16	SANDO, S., et al., "Nonenzymatic DNA ligation in <i>Escherichia coli</i> cells," <i>Nucleic Acids Res. Suppl.</i> (2):121-122 (2002).	
	C17	SHABAROVA, Z., et al., "Chemical ligation of DNA: the first non-enzymatic assembly of a biologically active gene," <i>Nucleic Acids Res.</i> 19(15):4247-4251 (Aug. 1991).	
	C18	SLOOP, F., et al., "Metallorganic labels for DNA sequencing and mapping," <i>N. J. Chem.</i> 18(3):317-326 (1994).	
	C19	UTO, Y., et al., "Electrochemical analysis of DNA amplified by the polymerase chain reaction with a ferrocenylated oligonucleotide," <i>Anal. Biochem.</i> 250(1):122-124 (Jul. 1997).	
	C20	XU, Y., et al., "A novel 5'-iodonucleoside allows efficient nonenzymatic ligation of single-stranded and duplex DNAs," <i>Tetrahedron Lett.</i> 38(32):5595-5598 (Aug. 1997).	
	C21	XU, Y., et al., "Chemical and enzymatic properties of bridging 5'-S-phosphorothioester linkages in DNA," <i>Nucleic Acids Res.</i> 26(13):3159-3164 (Jul. 1998).	
	C22	XU, Y., et al., "High sequence fidelity in a non-enzymatic DNA autoligation reaction," <i>Nucleic Acids Res.</i> 27(3):875-881 (Feb. 1999).	
	C23	XU, Y., et al., "Nonenzymatic autoligation in direct three-color detection of RNA and DNA point mutations," <i>Nat. Biotechnol.</i> 19(2):148-152 (Feb. 2001).	

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	C24	YU, C., et al., "Uridine-conjugated-ferrocene DNA oligonucleotides for electronic detection of nucleic acids," <i>Abstr. Papers Am. Chem. Soc.</i> 217(1):76 (Mar. 1999).	

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